FluWatch

Public Health Agency of Canada | Agence de la santé publique du Canada

April 9 to April 15, 2017 (Week 15)

Overall Summary

- Overall, influenza activity continues to decline slowly in Canada.
- In week 15, influenza B activity surpassed influenza A activity, with 50% or more of influenza laboratory detections, hospitalizations and outbreaks associated with influenza B.
- In keeping with the predominant circulation of A(H3N2) this season, the majority of laboratory detections, hospitalizations and deaths have been among adults aged 65+ years.
- For more information on the flu, see our Flu(influenza) web page.

Influenza/Influenza-like Illness (ILI) Activity (geographic spread)

In week 15, ten regions across six provinces and territories reported no influenza or influenza-like illness activity. Sporadic influenza activity was reported in 27 regions across nine provinces and territories. Localized activity was reported in 15 regions across five provinces. One region in QC reported widespread activity in week 15. For more details on a specific region, click on the map.

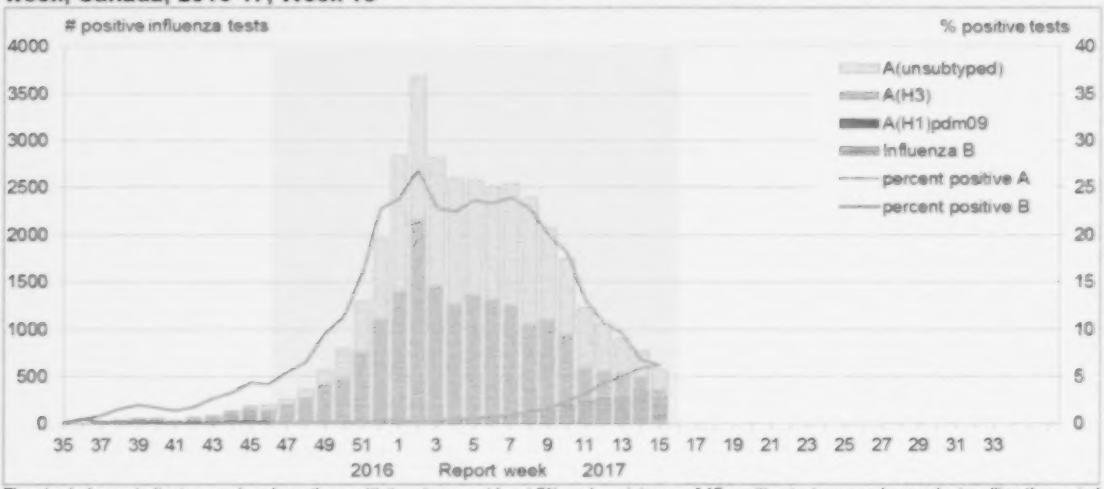
Figure 1 – Map of overall influenza/ILI activity level by province and territory, Canada, Week 15

Note: Influenza/ILI activity levels, as represented on this map, are assigned and reported by Provincial and Territorial Ministries of Health, based on laboratory confirmations, sentinel ILI rates and reported outbreaks. Please refer to detailed definitions at the end of the report. Maps from previous weeks, including any retrospective updates, are available in the mapping feature found in the Weekly Influenza Reports.

Laboratory Confirmed Influenza Detections

In week 15, the number (582) and the percentage of tests positive for influenza (12%) decreased slightly from the previous week. The proportion of detections due to influenza B has been steadily increasing since mid-February and reached 50% in week 15. However, the number of influenza B detections remains low compared to the same time period in recent seasons, and declined slightly compared to the previous week. For data on other respiratory virus detections, see the Respiratory Virus Detections in Canada Report on the Public Health Agency of Canada (PHAC) website.

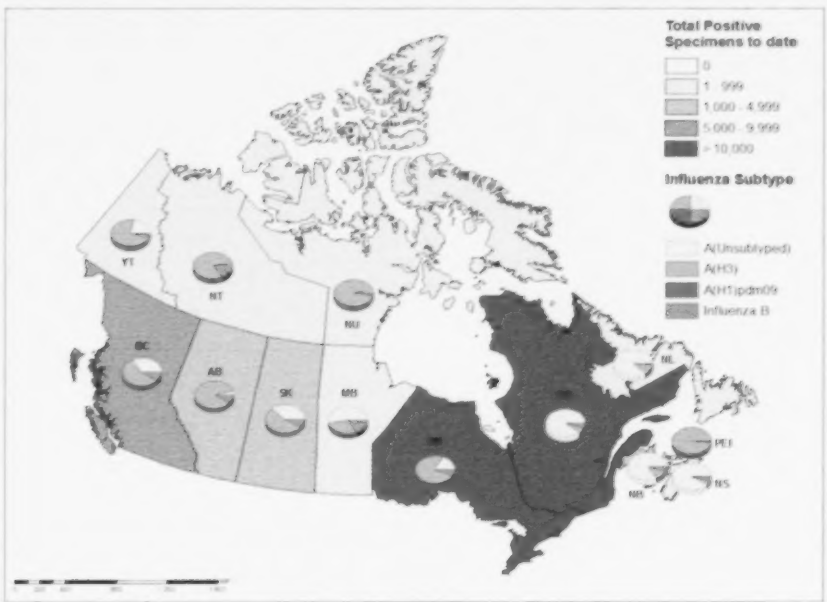
Figure 2 – Number of positive influenza tests and percentage of tests positive, by type, subtype and report week, Canada, 2016-17, Week 15



The shaded area indicates weeks where the positivity rate was at least 5% and a minimum of 15 positive tests were observed, signalling the period of seasonal influenza activity.

To date this season, 36,542 laboratory confirmed influenza detections have been reported, of which 93% have been influenza A. Influenza A(H3N2) is the most common subtype detected. For more detailed weekly and cumulative influenza data, see the text descriptions for Figures 2 and 3 or the Respiratory Virus Detections in Canada Report.

Figure 3 – Cumulative numbers of positive influenza specimens by type/subtype and province/territory, Canada, 2016-17, Week 15



To date this season, detailed information on age and type/subtype has been received for 25,251 laboratory-confirmed influenza cases (Table 1). Among cases with reported age and type/subtype information, adults aged 65+ accounted for half of the reported influenza cases. Among cases of influenza A(H3N2), adults aged 65+ represented 49% of cases, followed by adults aged 20-64 (32% of cases). Among cases of influenza B, adults aged 20-64 represented 41% of cases.

Table 1 – Weekly and cumulative numbers of positive influenza specimens by type, subtype and age-group reported through case-based laboratory reporting[1], Canada, 2016-17, Week 15

Age groups (years)	Week (April 9, 2017 to April 15, 2017)					Cumulative (August 28, 2016 to April 15, 2017)						
	Influenza A				B	Influenza A				B	Influenza A and B	
	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	A Total	A(H1) pdm09	A(H3)	A (UnS)[3]	Total	#	%
0-4	18	0	0	18	17	2175	13	820	1342	167	2342	9%
5-19	15	0	0	15	23	2178	10	1072	1096	319	2497	10%
20-44	>18	0	<5	18	25	3382	22	1794	1566	313	3695	15%
45-64	>28	0	<5	28	36	3827	19	1932	1876	443	4270	17%
65+	84	0	9	75	63	11834	10	5372	6452	613	12447	49%
Total	168	0	14	154	164	23396	74	10990	12332	1855	25251	100%
Percentage[2]	51%	0%	8%	92%	49%	93%	0%	47%	53%	7%		

[1]Table 1 includes specimens for which demographic information was reported. These represent a subset of all positive influenza cases reported. Cumulative data include updates to previous weeks.
[2]Percentage of tests positive for sub-types of influenza A are a percentage of all influenza A detections.
[3]UnS: unsubtyped: The specimen was typed as influenza A, but no result for subtyping was available.
Specimens from NT, YT, and NU are sent to reference laboratories in the provinces

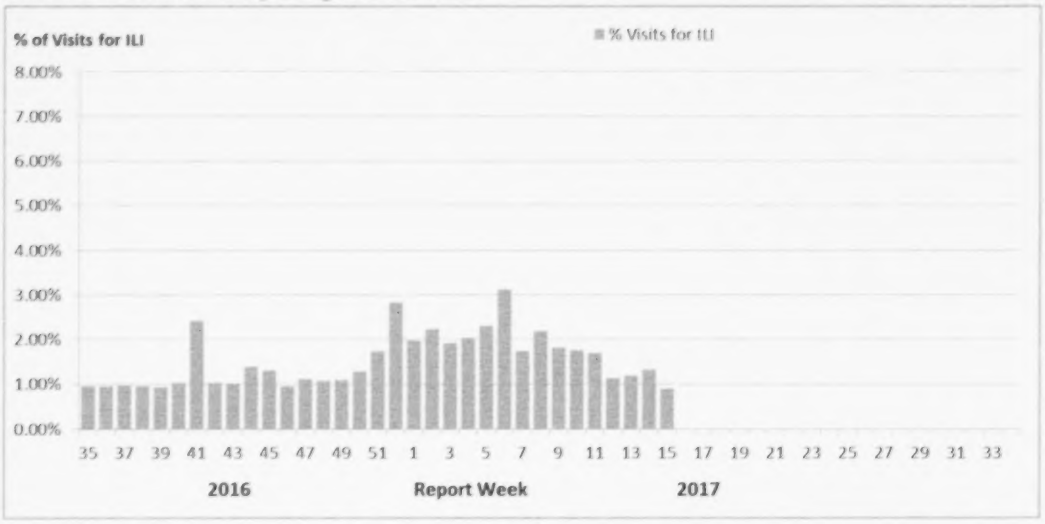
Syndromic/Influenza-like Illness Surveillance

Healthcare Professionals Sentinel Syndromic Surveillance

In week 15, 0.9% of visits to healthcare professionals were due to influenza-like illness, a decrease compared to the percentage of visits reported in week 14.

Figure 4 – Percentage of visits for ILI reported by sentinels by report week, Canada, 2016-17

Number of Sentinels Reporting Week 15: 107



Delays in the reporting of data may cause data to change retrospectively. In BC, AB, and SK, data are compiled by a provincial sentinel surveillance program for reporting to FluWatch. Not all sentinel physicians report every week.

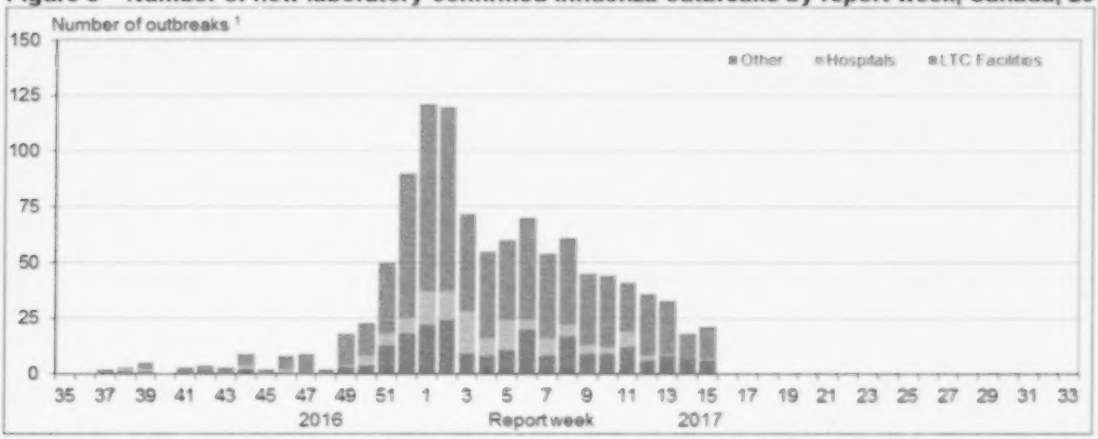
Are you a primary healthcare practitioner (General Practitioner, Nurse Practitioner or Registered Nurse) interested in becoming a FluWatch sentinel? Please visit our Influenza Sentinel page for more details.

Influenza Outbreak Surveillance

In week 15, 21 laboratory confirmed influenza outbreaks were reported, slightly more compared to the previous week. Of the 14 outbreaks with known strains or subtypes: seven were due to to influenza A and seven to influenza B. One additional outbreak due to ILI was reported in a school.

To date this season, 1,107 outbreaks have been reported and the majority (66%) have occurred in LTC facilities. A total of 56 outbreaks (7%) due to influenza B have been reported. Compared to the same period in the most recent previous A(H3N2) predominant season (2014-15), 1,646 outbreaks were reported, of which 74% occurred in LTC facilities and 81 outbreaks (5%) were due to influenza B.

Figure 5 – Number of new laboratory-confirmed influenza outbreaks by report week, Canada, 2016-17, Week 15



[1]All provinces and territories except NU report influenza outbreaks in long-term care facilities. All provinces and territories with the exception of NU and QC report outbreaks in hospitals. Outbreaks of influenza or influenza-like-illness in other facilities are reported to FluWatch but reporting varies between jurisdictions.Outbreak definitions are included at the end of this report.

Provincial/Territorial Influenza Hospitalizations and Deaths

In week 15, 101 influenza-associated hospitalizations were reported by participating provinces and territories*, a decrease from 146 reported in the previous week. The weekly percentage of influenza B associated hospitalizations has been steadily increasing since week 02, and in week 15, 57% of hospitalizations were associated with influenza B. The largest proportion of hospitalizations was among adults aged 65+ years (66%). Seven intensive care unit (ICU) admissions and three deaths were reported in week 15.

To date this season, 5,891 hospitalizations have been reported, of which 93% were due to influenza A. Among cases for which the subtype of influenza A was reported, almost all (3064/3088) were influenza A(H3N2). Adults 65+ accounted for 68% of the hospitalizations. A total of 225 ICU admissions and 336 deaths have been reported. The majority of deaths (86%) were reported in adults aged 65+ years.

Table 2 – Cumulative number of hospitalizations, ICU admissions and deaths by age and influenza type reported by participating provinces and territories, Canada, 2016-17, Week 15

Age Groups (years)	Cumulative (August 28, 2016 to April 15, 2017)						
	Hospitalizations			ICU Admissions		Deaths	
	Influenza A Total	Influenza B Total	Total [# (%)]	Influenza A and B Total	%	Influenza A and B Total	%
0-4	435	43	478 (8%)	15	7%	<5	x%
5-19	233	45	278 (5%)	13	6%	<5	x%
20-44	288	18	306 (5%)	20	9%	8	2%
45-64	737	71	808 (14%)	67	30%	35	10%
65+	3801	220	4021 (68%)	110	49%	289	86%
Total	5494	397	5891 (100%)	225	100%	336	100%

x: Supressed to prevent residual disclosure

*Note: Influenza-associated hospitalizations are not reported to PHAC by BC, NU, and QC. Only hospitalizations that require intensive medical care are reported by SK. ICU admissions are not distinguished among hospital admissions reported from ON. The hospitalization or death does not have to be attributable to influenza, a positive laboratory test is sufficient for reporting.

Sentinel Hospital Influenza Surveillance

Pediatric Influenza Hospitalizations and Deaths

In week 15, 9 laboratory-confirmed influenza-associated pediatric (≤16 years of age) hospitalizations were reported by the Immunization Monitoring Program Active (IMPACT) network, which is less than the previous week. Influenza B accounted for half of the cases in week 15. The number of weekly hospitalizations reported since week 05 has been below the six year average for the same time period (Figure 7).

To date this season, 506 laboratory-confirmed influenza-associated pediatric hospitalizations were reported by the IMPACT network. Children aged 0-23 months accounted for approximately 39% of hospitalizations and influenza A accounted for 86% of the reported hospitalizations. Among the 69 hospitalizations due to influenza B, 33 (48%) were in children over the age of 5 years. In comparison, children over the age of 5 years accounted for 33% of influenza A hospitalizations. Additionally, 85 intensive care unit (ICU) admissions have been reported. Children aged 0-23 months accounted for 27% of ICU cases, and children aged 10-16 years for 29%. A total of 56 ICU cases (72%) reported at least one underlying condition or comorbidity. Less than five deaths have been reported this season.

Figure 6 – Cumulative numbers of pediatric hospitalizations (≤16 years of age) with influenza by age-group reported by the IMPACT network, Canada, 2016-17, Week 15

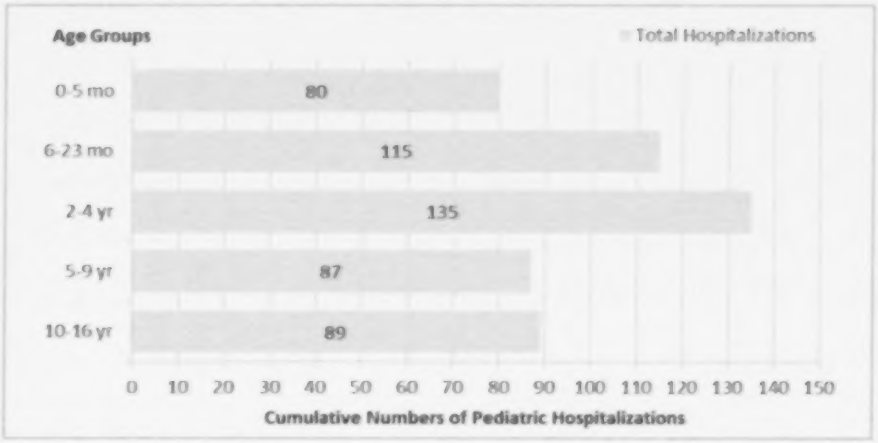
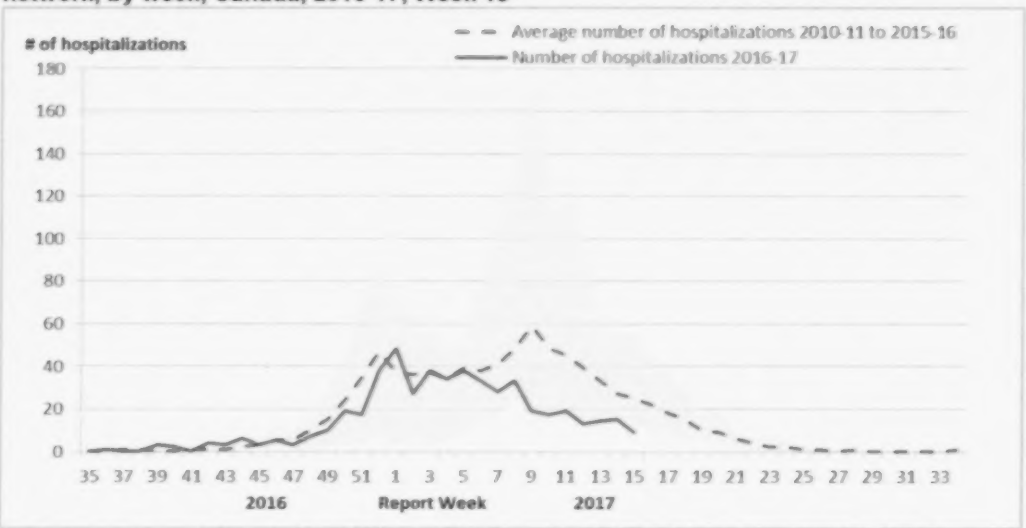


Figure 7 – Number of pediatric hospitalizations (≤16 years of age) with influenza reported by the IMPACT network, by week, Canada, 2016-17, Week 15



The shaded area represents the maximum and minimum number of cases reported by week from seasons 2010-11 to 2015-16

The number of hospitalizations reported through IMPACT represents a subset of all influenza-associated pediatric hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Adult Influenza Hospitalizations and Deaths

In week 15, 29 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations were reported by the Canadian Immunization Research Network (CIRN). The proportion of hospitalizations associated with influenza B continues to increase and was 69% in week 15. The majority of cases (79%) occurred in adults aged 65+.

To date this season, 1,453 laboratory-confirmed influenza-associated adult (≥20 years of age) hospitalizations have been reported by CIRN. Influenza A accounted for 94% of hospitalizations. Adults aged 65+ accounted for 79% of hospitalizations. To date, 103 intensive care unit (ICU) admissions have been reported. A total of 77 ICU cases reported at least one underlying condition or comorbidity. The median age of patients admitted to the ICU was 69 years. Approximately 68 deaths have been reported this season, the majority in adults aged 65+. The median age of reported deaths was 85 years.

Figure 8 - Cumulative numbers of adult hospitalizations (≥20 years of age) with influenza by type and age-group reported by CIRN, Canada, 2016-17, Week 15

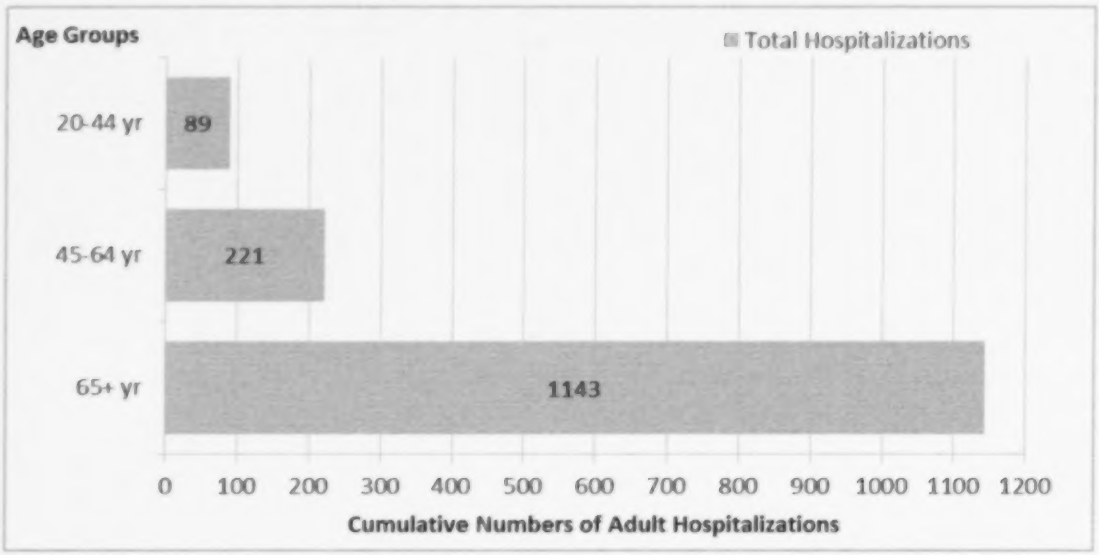
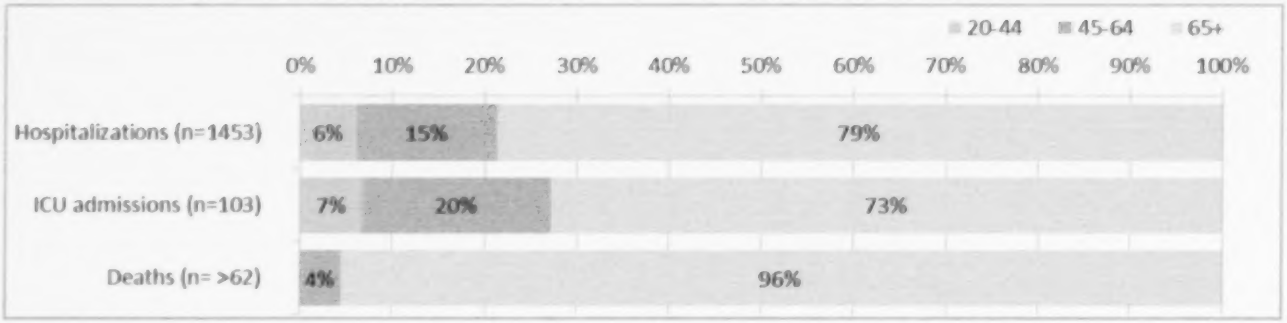


Figure 9 – Percentage of hospitalizations, ICU admissions and deaths with influenza by age-group (≥20 years of age) reported by CIRN, Canada 2016-17, Week 15



The number of hospitalizations reported through CIRN represents a subset of all influenza-associated adult hospitalizations in Canada. Delays in the reporting of data may cause data to change retrospectively.

Influenza Strain Characterizations

During the 2016-17 influenza season, the National Microbiology Laboratory (NML) has characterized 1,669 influenza viruses [1431 A(H3N2), 36 A(H1N1), 202 influenza B]. All but one influenza A virus (n=1430) and 46 influenza B viruses characterized were antigenically or genetically similar to the vaccine strains included in both the trivalent and quadrivalent vaccines. One hundred and fifty-six influenza B viruses were similar to the strain which is only included in the quadrivalent vaccine.

Table 3 – Influenza strain characterizations, Canada, 2016-17, Week 15

Strain Characterization Results[1]	Count	Description
Influenza A (H3N2)		
Antigenically A/Hong Kong/4801/2014-like	348	Viruses antigenically similar to A/Hong Kong/4801/2014, the A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine.
Genetically[2] A/Hong Kong/4801/2014-like	1082	Viruses belonging to genetic group 3C.2a. A/Hong Kong/4801/2014-like virus belongs to genetic group 3C.2a and is the influenza A(H3N2) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent vaccine. Additionally, genetic characterization of the 348 influenza A (H3N2) viruses that underwent HI testing determined that 287 viruses belonged to genetic group 3C.2a and 61 viruses belonged to genetic group 3C.3a. The majority of viruses belonging to genetic group 3C.3a are inhibited by antisera raised against A/Hong Kong/4801/2014[3].
Antigenically A/Indiana/10/2011-like[4]	1	Viruses antigenically similar to A/Indiana/10/2011, a candidate H3N2v vaccine virus.
Influenza A (H1N1)		
A/California/7/2009-like	36	Viruses antigenically similar to A/California/7/2009, the A(H1N1) component of the 2016-17 Northern Hemisphere's trivalent and quadrivalent influenza vaccine.
Influenza B		
B/Brisbane/60/2008-like (Victoria lineage)	46	Viruses antigenically similar to B/Brisbane/60/2008, the influenza B component of the 2016-17 Northern Hemisphere's **trivalent** and **quadrivalent** influenza vaccine.
B/Phuket/3073/2013-like (Yamagata lineage)	156	Viruses antigenically similar to B/Phuket/3073/2013, the additional influenza B component of the 2016-17 Northern Hemisphere **quadrivalent** influenza vaccine.

[1]The NML receives a proportion of the influenza positive specimens from provincial laboratories for strain characterization and antiviral resistance testing. Strain characterization data reflect the results of hemagglutination inhibition (HI) testing compared to the reference influenza strains recommended by WHO.
[2]Determined by sequence analysis.
[3]WHO - Recommended composition of the influenza virus vaccines for use in the 2016-17 northern hemisphere influenza season.
[4]Detected in epidemiological week 50. For more details, see Week 50 report.

Antiviral Resistance

During the 2016-17 season, the National Microbiology Laboratory (NML) has tested 932 influenza viruses for resistance to oseltamivir, 884 influenza viruses for resistance to zanamivir and 208 influenza viruses for resistance to amantadine. All but two influenza A(H3N2) viruses were sensitive to oseltamivir and all viruses were sensitive to zanamivir. All 208 influenza A viruses were resistant to amantadine (Table 4).

Table 4 – Antiviral resistance by influenza virus type and subtype, Canada, 2016-17, Week 15

Virus type and subtype	Oseltamivir		Zanamivir		Amantadine	
	# tested	# resistant (%)	# tested	# resistant (%)	# tested	# resistant (%)
A (H3N2)	717	2 (0.3%)	697	0 (0%)	178	178 (100%)
A (H3N2v)	1	0 (0%)	1	0 (0%)	1	1 (100%)
A (H1N1)	35	0 (0%)	33	0 (0%)	29	29 (100%)
B	179	0 (0%)	153	0 (0%)	NA[1]	NA[1]
TOTAL	932	2 (0.2%)	884	0 (0%)	208	208 (100%)

[1]NA: Not Applicable

Provincial and International Influenza Reports

- World Health Organization influenza update
- World Health Organization FluNet
- WHO Influenza at the human-animal interface
- Centers for Disease Control and Prevention seasonal influenza report
- European Centre for Disease Prevention and Control - epidemiological data
- South Africa Influenza surveillance report
- New Zealand Public Health Surveillance
- Australia Influenza Report
- Pan-American Health Organization Influenza Situation Report
- Alberta Health – Influenza Surveillance Report
- BC - Centre for Disease Control (BCCDC) - Influenza Surveillance
- New Brunswick – Influenza Surveillance Reports
- Newfoundland and Labrador – Surveillance and Disease Reports
- Nova Scotia - Flu Information
- Public Health Ontario – Ontario Respiratory Pathogen Bulletin
- Manitoba – Epidemiology and Surveillance – Influenza Reports
- Saskatchewan – influenza Reports
- PEI – Influenza Summary

FluWatch Definitions for the 2016-2017 Season

Abbreviations: Newfoundland/Labrador (NL), Prince Edward Island (PE), New Brunswick (NB), Nova Scotia (NS), Quebec (QC), Ontario (ON), Manitoba (MB), Saskatchewan (SK), Alberta (AB), British Columbia (BC), Yukon (YT), Northwest Territories (NT), Nunavut (NU).

Influenza-like-illness (ILI): Acute onset of respiratory illness with fever and cough and with one or more of the following - sore throat, arthralgia, myalgia, or prostration which is likely due to influenza. In children under 5, gastrointestinal symptoms may also be present. In patients under 5 or 65 and older, fever may not be prominent.

ILI/influenza outbreaks

Schools: Greater than 10% absenteeism (or absenteeism that is higher (e.g. >5-10%) than expected level as determined by school or public health authority) which is likely due to ILI. Note: it is recommended that ILI school outbreaks be laboratory confirmed at the beginning of influenza season as it may be the first indication of community transmission in an area.
Hospitals and residential institutions: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case. Residential institutions include but not limited to long-term care facilities (LTCF) and prisons.
Workplace: Greater than 10% absenteeism on any day which is most likely due to ILI.
Other settings: two or more cases of ILI within a seven-day period, including at least one laboratory confirmed case; i.e. closed communities.
Note that reporting of outbreaks of influenza/ILI from different types of facilities differs between jurisdictions.

Influenza/ILI Activity Levels

1 = No activity: no laboratory-confirmed influenza detections in the reporting week, however, sporadically occurring ILI may be reported
2 = Sporadic: sporadically occurring ILI and lab confirmed influenza detection(s) with **no outbreaks** detected within the influenza surveillance region†
3 = Localized: (1) evidence of increased ILI* ;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring in **less than 50% of the influenza surveillance region**†
4 = Widespread: (1) evidence of increased ILI*;
(2) lab confirmed influenza detection(s);
(3) **outbreaks** in schools, hospitals, residential institutions and/or other types of facilities occurring **in greater than or equal to 50% of the influenza surveillance region**†

Note: ILI data may be reported through sentinel physicians, emergency room visits or health line telephone calls.
** More than just sporadic as determined by the provincial/territorial epidemiologist.*
† Influenza surveillance regions within the province or territory as defined by the provincial/territorial epidemiologist.

We would like to thank all the Fluwatch surveillance partners who are participating in this year's influenza surveillance program.
This report is available on the Government of Canada Influenza webpage. Ce rapport est disponible dans les deux langues officielles.